2021 IEEE/ACM 14th International Workshop on Search-Based Software Testing (SBST 2021)

Virtual Conference 22-30 May 2021



IEEE Catalog Number: CFP21C58-POD **ISBN**:

978-1-6654-4572-6

Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP21C58-POD

 ISBN (Print-On-Demand):
 978-1-6654-4572-6

 ISBN (Online):
 978-1-6654-4571-9

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



2021 IEEE/ACM 14th International Workshop on Search-Based Software Testing (SBST) SBST 2021

Table of Contents

Message from the SBST 2021 Chairs viii Workshop Organization ix
Research Papers
Beacon: Automated Test Generation for Stack-Trace Reproduction using Genetic Algorithms .1
A Novelty Search and Metamorphic Testing Approach to Automatic Test Generation .8
Augmenting Search-Based Techniques with Static Synthesis-Based Input Generation .12
Data Driven Testing of Cyber Physical Systems .16
Tools Competition Papers
SBST Tool Competition 2021 20. Sebastiano Panichella (Zurich University of Applied Science, Switzerland), Alessio Gambi (University of Passau, Germany), Fiorella Zampetti (University of Sannio, Italy), and Vincenzo Riccio (Software Institute - USI Switzerland)

EvoSuite at the SBST 2021 Tool Competition 28
EvoSuiteDSE at the SBST 2021 Tool Competition .30 Ignacio Manuel Lebrero Rial (University of Buenos Aires, Argentina) and Juan Pablo Galeotti (University of Buenos Aires, Argentina)
Kex at the 2021 SBST Tool Competition .32
UtBot at the SBST2021 Tool Competition 34
Frenetic at the SBST 2021 Tool Competition .36
GABezier at the SBST 2021 Tool Competition .38
Deeper at the SBST 2021 Tool Competition: ADAS Testing Using Multi-Objective Search 40
SWAT Tool at the SBST 2021 Tool Competition .42
Preliminary Evaluation of Path-Aware Crossover Operators for Search-Based Test Data Generation for Autonomous Driving .44

Author Index 49	 	
	 	,